



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,477	01/27/2004	Shougo Sato	118483	9155
25944	7590	06/08/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			WALSH, RYAN D	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 06/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

32

Office Action Summary	Application No. 10/764,477	Applicant(s) SATO, SHOUGO	
	Examiner Ryan D. Walsh	Art Unit 2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9 and 11-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 and 22 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 13, 2006 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9, 15, 17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwasaki et al. (JP Pub. 2003-005515), hereinafter referred to as Iwasaki.

Regarding Claim 9, Iwasaki teaches, "A developing device comprising: a developer-carrying member (Fig.1, ref. #1) that conveys a charged nonmagnetic single-component developer [0046] to a surface of an image-carrying member; a supplying member (4) that supplies a developer to the developer-carrying member; a removing member (17) that removes a nonmagnetic single-component developer remaining on a peripheral surface of the developer-carrying member that was not supplied to the image-carrying member; and a removing device (18) that removes the charged

nonmagnetic single-component developer from the removing member, the removing device being arranged to contact the removing member, wherein the removing member is positioned upstream of the supplying member in the rotational direction of the developer-carrying member (see Fig. 1); the removing member rotates such that a peripheral surface of the removing member opposing the developer-carrying member moves in the same direction as the peripheral surface of the developer-carrying member opposing the removing member while in contact with the peripheral surface of the developer-carrying member (see Fig. 1), wherein the removing member is formed of a conductive material [0039], and a bias is applied to between the removing member and the developer-carrying member so as to attract the electrically-charged nonmagnetic single-component developer from the developer-carrying member onto the removing member ([0039]-[0050])."

Regarding Claim 15, Iwasaki teaches, "a thickness-regulating member (7) that is disposed downstream of the supplying member in the rotational direction of the developer-carrying member, the thickness-regulating member regulates a thickness of the charged-nonmagnetic single-component developer carried on the developer-carrying member (see Fig. 1 and [0044])."

Regarding Claim 17, Iwasaki teaches, "An image forming apparatus, comprising: an image-carrying member (11); a developer-carrying member (Fig.1, ref. #1) that conveys a charged nonmagnetic single-component developer [0046] to a surface of an image-carrying member; a supplying member (4) that supplies a developer to the developer-carrying member; a removing member (17) that removes a nonmagnetic

single-component developer remaining on a peripheral surface of the developer-carrying member that was not supplied to the image-carrying member; and a removing device (18) that removes the charged nonmagnetic single-component developer from the removing member, the removing device being arranged to contact the removing member; and a power source (6, 2 & 13), wherein the removing member is positioned upstream of the supplying member in the rotational direction of the developer-carrying member (see Fig. 1); the removing member rotates such that a peripheral surface of the removing member opposing the developer-carrying member moves in the same direction as the peripheral surface of the developer-carrying member opposing the removing member while in contact with the peripheral surface of the developer-carrying member (see Arrows of Rotation in Figure 1); the power source applies a bias to the removing member and the developer-carrying member so as to attract the electrically-charged nonmagnetic single-component developer from the developer-carrying member onto the removing member ([0039]-[0050]); and the power source applies a bias to the supplying member and the developer-carrying member so as to attract the electrically-charged nonmagnetic single-component developer from the supplying member to the developer-carrying member ([0039]-[0050])."

Regarding claim 19, Iwasaki teaches, "wherein the removing device is a blade (18) that scrapes off the charged nonmagnetic single-component developer (see Fig. 1)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 8, 16, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki (JP Pub. 2003-005515) in view of Wada et al. (US Pat. # 5,495,322), hereinafter referred to as Wada.

Regarding Claim 1, Iwasaki teaches, "A developing device comprising: a developer-carrying member (Fig .1, ref. # 1) that conveys a charged nonmagnetic single-component developer [0046] to a surface of an image-carrying member; a supplying member (4) that supplies a developer to the developer-carrying member; and a removing member (17) that removes a charged nonmagnetic single-component developer remaining on a peripheral surface of the developer-carrying member that was not supplied to the image-carrying member; and a removing device (18) that removes the charged nonmagnetic single-component developer from the removing member, the removing device being arranged to contact the removing member; a bias (by 13) is applied to the removing member and the developer-carrying member so as to attract the charged nonmagnetic single-component developer from the peripheral surface of the developer-carrying member onto the removing member, wherein the removing member is formed of a conductive material ([0039]-[0050])."

Iwasaki does not teach, "wherein the developer-carrying member rotates in a rotational direction such that the peripheral surface of the developer-carrying member

opposing the supplying member moves vertically downward; the removing member is positioned vertically above the supplying member and upstream of the supplying member in the rotational direction of the developer-carrying member."

However, Wada teaches the deficiencies of Iwasaki (see Fig. 1, ref. # 2, 3 and 10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Iwasaki's invention to include wherein the developer-carrying member rotates in a rotational direction such that the peripheral surface of the developer-carrying member opposing the supplying member moves vertically downward; the removing member is positioned vertically above the supplying member and upstream of the supplying member in the rotational direction of the developer-carrying member.

The ordinary artisan would have been motivated to modify Iwasaki's invention in a manner described above for at least the purpose of providing a more effective cleaning method.

Regarding Claim 2, Iwasaki teaches, "wherein the removing member rotates such that a peripheral surface of the removing member opposing the developer-carrying member moves in the same direction as the peripheral surface of the developer-carrying member opposing the removing member while in contact with the peripheral surface of the developer-carrying member (see Arrows of 1 & 17 in Figure 1). "

Regarding Claim 8, Iwasaki teaches, "a thickness-regulating member (7) that is disposed downstream of the supplying member in the rotational direction of the developer-carrying member, the thickness-regulating member regulates a thickness of

the charged-nonmagnetic single-component developer carried on the developer-carrying member (see Fig. 1 and [0044]).”

Regarding Claim 16, Iwasaki teaches, “An image forming apparatus, comprising: an image-carrying member (11); a developer-carrying member (Fig. 1, ref. # 1) that conveys a charged nonmagnetic single-component developer [0046] to a surface of the image-carrying member, a supplying member (4), formed of a conductive material, that supplies a developer to the developer-carrying member; a removing member (17), formed of a conductive material, that removes a charged nonmagnetic single-component developer remaining on a peripheral surface of the developer-carrying member that was not supplied to the image-carrying member; a removing device (18) that removes the charged nonmagnetic single-component developer from the removing member, the removing device being arranged to contact the removing member; and a power source (6, 2 & 13), a bias is applied by the power source to the removing member and the developer-carrying member so as to attract the charged nonmagnetic single-component developer from the peripheral surface of the developer-carrying member onto the removing member ([0039]-[0050]), and a bias is applied by the power source to the supplying member and the developer-carrying member so as to attract the charged nonmagnetic single-component developer from the supplying member to the developer-carrying member ([0039]-[0050]). ”

Iwasaki does not teach, “wherein the developer-carrying member rotates in a rotational direction such that the peripheral surface of the developer-carrying member opposing the supplying member moves vertically downward; the removing member is

positioned vertically above the supplying member and upstream of the supplying member in the rotational direction of the developer-carrying member.”

However, Wada teaches the deficiencies of Iwasaki (see Fig. 1, ref. # 2, 3 and 10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Iwasaki's invention to include wherein the developer-carrying member rotates in a rotational direction such that the peripheral surface of the developer-carrying member opposing the supplying member moves vertically downward; the removing member is positioned vertically above the supplying member and upstream of the supplying member in the rotational direction of the developer-carrying member.

The ordinary artisan would have been motivated to modify Iwasaki's invention in a manner described above for at least the purpose of providing a more effective cleaning method.

Regarding claims 18 and 20, Iwasaki teaches, “wherein the removing device is a blade (18) that scrapes off the charged nonmagnetic single-component developer (see Fig. 1).”

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki (JP Pub. 2003-005515) in view of Wada (US Pat. # 5,495,322) as applied to claim 1 above, and further in view of Iwata (US Pat. # 5,809,386).

Regarding Claim 4, the combination of Iwasaki and Wada does not teach, “wherein the removing member rotates and has a peripheral surface, and a velocity ratio of the peripheral surfaces of the removing member and the developer-carrying

member is 0.7-1.3.” However, Iwata teaches, “wherein the removing member rotates (Col. 7, Ln. 5-6) and has a peripheral surface, and a velocity ratio of the peripheral surfaces of the removing member and the developer-carrying member is 0.7-1.3 (Col. 6, Ln. 40-43).” It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Iwasaki and Wada invention’s to include wherein the removing member rotates and has a peripheral surface, and a velocity ratio of the peripheral surfaces of the removing member and the developer-carrying member is 0.7-1.3.

The ordinary artisan would have been motivated to modify the combination of Iwasaki and Wada invention’s in a manner described above for at least the purpose of maintaining sensitive toner control.

Regarding Claim 5, the combination of Iwasaki and Wada teaches, “the supplying member rotates such that a peripheral surface of the supplying member opposing the developer-carrying member moves in the same direction as the peripheral surface of the developer-carrying member opposing the supplying member (see Fig. 1 of Iwasaki).” The combination of Iwasaki and Wada does not teach, “a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3.” However, Iwata teaches, “a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3 (Col. 6, Ln. 34 & 50-53).” It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Iwasaki and Wada invention’s to

include a velocity ratio of the peripheral surfaces of the removing member and the developer-carrying member is 0.7-1.3.

The ordinary artisan would have been motivated to modify the combination of Iwasaki and Wada invention's in a manner described above for at least the purpose of maintaining sensitive toner control.

Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Iwasaki, Wada and Iwata as applied to claim 5 above, and further in view of Iwamatsu et al. (US Pat. # 6,064,847), hereinafter referred to as Iwamatsu.

Regarding Claim 6, Iwasaki teaches, "wherein the supplying member is formed of a conductive material [0033]." Iwasaki does not teach, "the supplying member and the developer-carrying member have the same potential. " However, Iwamatsu teaches the deficiencies of Iwasaki (see Col. 14, Ln.'s 26-27 & 34-35 of Iwamatsu). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Iwasaki, Wada and Iwata's invention to include the supplying member and the developer-carrying member have the same potential.

The ordinary artisan would have been motivated to modify the combination of Iwasaki, Wada and Iwata's invention in a manner described above for at least the purpose of ensuring smooth transfer from the supplying roller and the developer, when toner is being moved towards the photoconductive drum.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki (JP Pub. 2003-005515) in view of Wada et al. (US Pat. # 5,495,322) as applied to claim

1 above, and further in view of Iwata (US Pat. # 5,809,386) and in even further view of Iwamatsu et al. (US Pat. # 6,064,847).

Regarding Claim 7, Iwasaki teaches, "the supplying member rotates such that a peripheral surface of the supplying member opposing the developer-carrying member moves in the same direction as the peripheral surface of the developer-carrying member opposing the supplying member (see Fig. 1); the supplying member is formed of a conductive material [0033]; and a bias is applied to between the supplying member and the developer-carrying member so as to attract the charged nonmagnetic single-component developer from the supplying member to the developer-carrying member ([0039]-[0050]). " Iwasaki does not teach, "a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3," or "the supplying member and the developer-carrying member have the same potential." However, Iwata teaches, "a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3 (Col. 6, Ln. 34 & 50-53)", and Iwamatsu teaches, "the supplying member and the developer-carrying member have the same potential (see Col. 14, Ln.'s 26-27 & 34-35 of Iwamatsu)." It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Iwasaki and Wada's invention to include a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3, and the supplying member and the developer-carrying member have the same potential.

The ordinary artisan would have been motivated to modify the combination of Iwasaki and Wada invention's in a manner described above for at least the purpose of

maintaining sensitive toner control between the supplying member and the developer-carrying member.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Iwasaki (JP Pub. 2003-005515) in view of Iwata (US Pat. # 5,809,386).

Regarding claim 11, Iwasaki does not teach, "wherein a velocity ratio of the peripheral surfaces of the removing member and the developer-carrying member is 0.7-1.3." However, Iwata teaches the deficiencies of Iwasaki (Col. 6, Ln. 40-43). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Iwasaki's invention to include a velocity ratio of the peripheral surfaces of the removing member and the developer-carrying member is 0.7-1.3.

The ordinary artisan would have been motivated to modify Iwasaki's invention in a manner described above for at least the purpose of maintaining sensitive toner control.

Regarding claim 12, Iwasaki teaches, "the supplying member rotates such that a peripheral surface of the supplying member opposing the developer-carrying member moves in the same direction as the peripheral surface of the developer-carrying member opposing the supplying member (see Fig. 1)." Iwasaki does not teach, "a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3." However, Iwata teaches, "a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3 (Col. 6, Ln. 34 & 50-53)." It would have been obvious to one of ordinary skill in the art at the

Art Unit: 2852

time the invention was made to modify Iwasaki's invention to include a velocity ratio of the peripheral surfaces of the removing member and the developer-carrying member is 0.7-1.3.

The ordinary artisan would have been motivated to modify the combination of Iwasaki's invention in a manner described above for at least the purpose of maintaining sensitive toner control.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki (JP Pub. 2003-005515) in view of Iwata (US Pat. # 5,809,386) as applied to claim 12 above, and further in view of Iwamatsu et al. (US Pat. # 6,064,847).

Regarding claim 13, Iwasaki teaches, "wherein the supplying member is formed of a conductive material [0033]." Iwasaki does not teach, "the supplying member and the developer-carrying member have the same potential. " However, Iwamatsu teaches the deficiencies of Iwasaki (see Col. 14, Ln.'s 26-27 & 34-35 of Iwamatsu). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Iwasaki and Iwata's invention to include the supplying member and the developer-carrying member have the same potential.

The ordinary artisan would have been motivated to modify the combination of Iwasaki and Iwata's invention in a manner described above for at least the purpose of ensuring smooth transfer from the supplying roller and the developer, when toner is being moved towards the photoconductive drum.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki (JP Pub. 2003-005515) as applied to claim 9 above, and further in view of Iwata (US Pat. # 5,809,386) and in even further view of Iwamatsu et al. (US Pat. # 6,064,847).

Regarding claim 14, Iwasaki teaches, "the supplying member rotates such that a peripheral surface of the supplying member opposing the developer-carrying member moves in the same direction as the peripheral surface of the developer-carrying member opposing the supplying member (see Fig. 1); the supplying member is formed of a conductive material [0033]; and a bias is applied to between the supplying member and the developer-carrying member so as to attract the charged nonmagnetic single-component developer from the supplying member to the developer-carrying member ([0039]-[0050])." Iwasaki does not teach, "a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3," or "the supplying member and the developer-carrying member have the same potential." However, Iwata teaches, "a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3 (Col. 6, Ln. 34 & 50-53)", and Iwamatsu teaches, "the supplying member and the developer-carrying member have the same potential (see Col. 14, Ln.'s 26-27 & 34-35 of Iwamatsu)." It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Iwasaki's invention to include a velocity ratio of the peripheral surfaces of the supplying member and the developer-carrying member is 0.7-1.3, and the supplying member and the developer-carrying member have the same potential.

The ordinary artisan would have been motivated to modify Iwasaki's invention in a manner described above for at least the purpose of maintaining sensitive toner control between the supplying member and the developer-carrying member.

Allowable Subject Matter

Claims 21 and 22 allowed.

Response to Arguments

Applicant's arguments with respect to claims 1,2,4-9 and 11-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

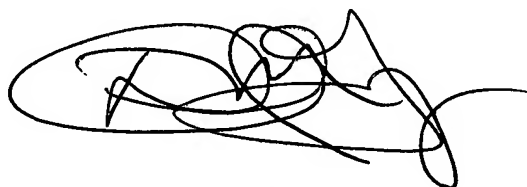
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Walsh whose telephone number is 571-272-2726. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2852

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan D. Walsh
Patent Examiner
Art Unit 2852

A handwritten signature in black ink, appearing to read 'DAVID M. GRAY', with a large, stylized loop at the end.

DAVID M. GRAY
PRIMARY EXAMINER